

Appl. No. 10/709,783
Docket No. 146128CT/GEM-0119

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REMARKS / ARGUMENTS

Status of Claims

Claims 1-23 are pending in the application and stand rejected. Applicant has amended Claims 1, 6, 15, 16 and 21, leaving Claims 1-23 for consideration upon entry of the present Amendment.

Applicant respectfully submits that the rejections under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) have been traversed, that no new matter has been entered, and that the application is in condition for allowance.

Rejections Under 35 U.S.C. §102(b)

Claims 1, 2, 5 and 21 stand rejected under 35 U.S.C. §102(b) as being anticipated by Onik et al. (U.S. Patent No. 4,583,538, hereinafter Onik).

Applicant traverses this rejection for the following reasons.

Applicant respectfully submits that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, *in a single prior art reference.*” *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). Moreover, “[t]he identical invention must be shown in as complete detail as is contained in the *** claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Furthermore, the single source must disclose all of the claimed elements “arranged as in the claim.” *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

Applicant has amended Claim 1 to now recite, inter alia,

“A method for guiding an end effector to a target position within a person, the end effector being spatially associated with a robot coordinate system, the method comprising:

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generating a plurality of digital images of an interior anatomy of the person when the person has a predetermined respiratory state, the digital images being spatially associated with a digital image coordinate system;

indicating a skin entry position on at least one of the digital images;

indicating the target position on at least one of the digital images;

determining a trajectory path based on the skin entry position and the target position;

registering the spatial relationship between the end effector and the robot coordinate system with the spatial relationship between the end effector and the digital image coordinate system via a fiducial component associated with the end effector and visible in the digital images, thereby linking the end effector to the digital image coordinate system; and

in response to the registering, movement of the fiducial component in the digital image coordinate system, and points specified in the digital image coordinate system, moving the end effector along the trajectory path toward the target position when the person has substantially the predetermined respiratory state;

wherein the determining a trajectory path comprises determining a trajectory path in the robot coordinate system by transforming a specified trajectory path in the digital image coordinate system via coordinate transformation.”

Applicant has amended Claim 21 to now recite, inter alia,

“A method for guiding an end effector to a target position within a person, the end effector being spatially associated with a robot coordinate system, the person having an associated plurality of digital images that are spatially associated with a digital image coordinate system, comprising:

monitoring a respiratory state of a person during at least one respiratory cycle;

registering the spatial relationship between the end effector and the robot coordinate system with the spatial relationship between the end effector and the digital image coordinate system via a fiducial component associated with the end effector and

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visible in the digital images, thereby linking the end effector to the digital image coordinate system;

determining a trajectory path in the robot coordinate system by transforming a specified trajectory in the digital image coordinate system via coordinate transformation;
and

in response to the registering and movement of the fiducial component in the digital image coordinate system, moving the end effector along a trajectory path in the robot coordinate system toward the target position in the person when the person has substantially a predetermined respiratory state."

No new matter has been added by these amendments as antecedent support may be found in the specification as originally filed, such as at Paragraphs [0044] and [0058-0066], for example.

Dependent claims inherit all of the limitations of the respective parent claim.

In comparing Onik with the claimed invention as amended, Applicant finds Onik to disclose "a localization device placed on the patient's skin" (Abstract), "[a] biopsy guide oriented in the plane of the CT scan" (col. 3, lines 16-17), "a stereotaxis guide instrument... the guide is independent of the CT scanner or its table" (col. 4, lines 64-68), "[the] stereotaxis guide instrument... having base 6 on the floor makes it free of the CT table, and therefore scanner independent" (col. 5, lines 23-26), and to be absent each and every element of the claimed invention as amended and claimed.

More specifically, Applicant submits that Onik is absent the limitations of:

"registering the spatial relationship between the end effector and the robot coordinate system with the spatial relationship between the end effector and the digital image coordinate system via a fiducial component associated with the end effector and visible in the digital images, thereby linking the end effector to the digital image coordinate system; and

in response to the registering, movement of the fiducial component in the digital image coordinate system, and points specified in the digital image coordinate system,

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moving the end effector along the trajectory path toward the target position when the person has substantially the predetermined respiratory state;

wherein the determining a trajectory path comprises determining a trajectory path in the robot coordinate system by transforming a specified trajectory path in the digital image coordinate system via coordinate transformation."

Accordingly, Applicant submits that Onik does not disclose all of the claimed elements arranged as in the claim, and absent anticipatory disclosure in Onik of each and every element of the claimed invention arranged as in the claim, Onik cannot be anticipatory.

In view of the amendment and foregoing remarks, Applicant submits that Onik does not disclose each and every element of the claimed invention arranged as claimed and therefore cannot be anticipatory. Accordingly, Applicant respectfully submits that the Examiner's rejection under 35 U.S.C. §102(b) has been traversed, and requests that the Examiner reconsider and withdraw of this rejection.

Rejections Under 35 U.S.C. §103(a)

Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Onik in view of Acker (U.S. Patent No. 6,580,938, hereinafter Acker).

Claim 4 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Onik in view of Hall, et al. (U.S. Patent No. 6,298,257, hereinafter Hall).

Claims 6, 8-11, 14-17, 19, 20, 22 and 23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Onik in view of Hall.

Claim 7 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Onik in view of Hall as applied to claim 6 above, and further in view of Schweikard, et al. (U.S. Patent No. 6,144,875, hereinafter Schweikard).

Claims 13 and 18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Onik in view of Hall as applied to claim 6, above and further in view of Acker.

Applicant traverses these rejections for the following reasons.

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Applicant respectfully submits that the obviousness rejection based on the References is improper as the References fail to teach or suggest each and every element of the instant invention in such a manner as to perform as the claimed invention performs. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Examiner must meet the burden of establishing that all elements of the invention are taught or suggested in the prior art. MPEP §2143.03.

Applicant has amended independent Claims 6, 15 and 16 as set forth above to now recite elements also found in amended Claims 1 and 21.

Dependent claims inherit all of the limitations of the respective parent claim and any intervening claim.

In view of Applicant's remarks set forth above regarding the deficiencies of Onik in anticipating the invention of Claims 1 and 21, in view of amended Claims 6, 15 and 16 now reciting elements similar to those of Claims 1 and 21, and in view of Onik being applied as the primary reference to reject Claims 6, 15 and 16 under an obviousness rejection, Applicant submits that Onik fails to teach each and every element of the claimed invention arranged so as to perform as the claimed invention performs, and further submits that the secondary references fail to cure the deficiencies of Onik.

More specifically, Applicant submits that the primary reference and each of the secondary references are deficient in teaching a dual coordinate system, registration of the end effector between the two coordinate systems, linking of the end effector to the digital image coordinate system, and determination of a trajectory path in the robot coordinate system by transforming a specified trajectory path in the digital image coordinate system via coordinate transformation.

In addition to the foregoing, Applicant finds no motivation or teaching in any of the References to modify a primary Reference in view of its respective secondary Reference to arrive at the claimed arrangement of elements without disturbing the intended purpose of the art being modified (a biopsy guide operable independent of the CT scanner, Onik at col. 5, lines 23-26).

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In view of the foregoing, Applicant submits that the References fail to teach or suggest each and every element of the claimed invention and are therefore wholly inadequate in their teaching of the claimed invention as a whole, fail to motivate one skilled in the art to do what the patent Applicant has done, fail to offer any reasonable expectation of success in combining the References to perform as the claimed invention performs, fail to teach a modification to prior art that does not render the prior art being modified unsatisfactory for its intended purpose, and discloses a substantially different invention from the claimed invention, and therefore cannot properly be used to establish a prima facie case of obviousness. Accordingly, Applicant respectfully requests reconsideration and withdrawal of all rejections under 35 U.S.C. §103(a), which Applicant considers to be traversed.

In light of the forgoing, Applicant respectfully submits that the Examiner's rejections under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) have been traversed, and respectfully requests that the Examiner reconsider and withdraw these rejections.

If a communication with Applicant's Attorneys would assist in advancing this case to allowance, the Examiner is cordially invited to contact the undersigned so that any such issues may be promptly resolved.

The Commissioner is hereby authorized to charge any additional fees that may be required for this amendment, or credit any overpayment, to Deposit Account No. 07-0845.

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In the event that an extension of time is required, or may be required in addition to that requested in a petition for extension of time, the Commissioner is requested to grant a petition for that extension of time that is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above-identified Deposit Account.

Respectfully submitted,

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